1. Do problem 5 on page 579 on the text. You may show the values of the array in table form.

<table>
<thead>
<tr>
<th>$a(i,j)$</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$i$</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>$j$</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Do problem 7 on page 579 on the text. You may show the values of the array in table form.

<table>
<thead>
<tr>
<th>$a(i,j)$</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$i$</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>$j$</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

(continued on back)
3. Just to beat a horse to death, consider again the Fibonacci sequence which is defined as

\[ 1, 1, 2, 3, 5, 8, 13, \ldots \]

Each number in the sequence is the sum of the previous two. Thus, letting \( f_n \) correspond to the \( n \)th number in the sequence—so that \( f_1 = 1, f_2 = 1, f_3 = 2, \) etc.—then \( f_n \) is given by
\[ f_{n-1} + f_{n-2}. \]
Write a subroutine that takes two arguments. The first argument is an integer array and the second argument is an integer giving the number of elements in the array. The subroutine sets the values of the array elements to the numbers of the Fibonacci sequence. Thus, if the array \( a \) had eight elements and the subroutine were called with the statement

```
call fib(a, 8)
```

then after this call \( a(1) \) would be 1, \( a(2) \) would be 1, \ldots and \( a(8) \) would be 21.

C......
C Subroutine to fill a 1D array with the numbers from the
C Fibonacci sequence. Will assume that there is at least element
C in the array.
C......
subroutine fib(a,n)
  implicit none
  integer a(*), i, n
  a(1) = 1
  if (n .ge. 2) a(2) = 1
  do 10 i=3,n
    a(i) = a(i-1) + a(i-2)
  10 continue
  return
end